



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,098	09/21/2001	Mineo Okamura	FUJZ 19.021(100794-11761)	5081
26304	7590	03/21/2006	EXAMINER	
KATTEN MUCHIN ROSENMAN LLP 575 MADISON AVENUE NEW YORK, NY 10022-2585			WONG, WARNER	
			ART UNIT	PAPER NUMBER
			2616	
DATE MAILED: 03/21/2006				

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/960,098	OKAMURA, MINEO	
	<b>Examiner</b>	<b>Art Unit</b>	
	Warner Wong	2668	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 October 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: "Communication Device for Managing Tunnels".

### ***Claim Objections***

2. Claim 3 is objected to because of the following informalities: Line 5 recites the limitation "a number of tunnel", which should be grammatically corrected to "a number of tunnels". Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow (6,973,057) in view of Bomar (6,535,738).

**Regarding claim 1**, Forslow describes a home agent HA (communication device) which establishes tunnels to foreign agents FA (accommodating communication devices) accommodating the mobile terminal/device which is moving (fig. 1, #14, #16A, #16B, #20A, #20B & #22 and col. 7, lines 46-48).

Forslow lacks what Bomar describes: a soft handover (SHO) process which releases, with a movement of a single mobile node (MN) to be managed, an older connection (tunnel) already established so as minimize (prevent) a number of all tunnels established between the system (communication device) and a BS (accommodating communication device) accommodating the MN from exceeding a predetermined threshold value (in SHO, multiple simultaneous BS connections are maintained: col. 1, lines 23-25, and older connections from previously used BS further away when the MN is traversing will be dropped/released; col. 2, lines 9-13, and thresholds being the "maximum # of links/BS" conditions in fig. 1, #1040, #1060, #1070).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the method of Bomar to the system of Forslow. The motivation being that by reducing the number of simultaneous channels used in each soft handover of a mobile, it may increase the system soft handover capacity (Bomar, col. 2, lines 9-13).

**Regarding claim 2**, Forslow and Bomar combined describe all limitations set forth in claim 1. Bomar further describes that the threshold value is unique for each mobile node (fig. 1, #1040, #1060, #1070, varying thresholds of "maximum # of links/BS").

4. **Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow in view of Bomar.

Forslow describes a Home Agent HA (communication device) with connections to Foreign Agents FA (accommodating communication device) for a Mobile Node MN which is moving (fig. 1, #14, 20A, #20B, #22), where the router functionality of the HA is the controller.

Forslow lack what Bomar describes:

a soft handover (SHO) process where the system (communication device) establishes, with a movement of a mobile node (MN) a new connection (tunnel) for transferring a communication packet with the mobile node to an accommodating BS accommodating the MN at a moved destination, and which manages the mobile node (col. 1, lines 48-52, where new connections are set up when the MN is traversing from one cell to another as described in col. 2, lines 9-13).

Bomar also describes a method for controlling a number of BS connections (tunnels) to be within a predetermined number (fig. 1, #1040, #1060, #1070, varying thresholds of "maximum # of links/BS").

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the method of Bomar to the system of Forslow. The motivation being that by reducing the number of simultaneous channels used in each soft handover of a mobile, it may increase the system soft handover capacity (Bomar, col. 2, lines 9-13).

5. **Claim 4** is rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow in view of Bomar and Suzuki (6,791,946).

Forslow describes a Home Agent HA (communication device) with established connections to Foreign Agents FA (accommodating communication device) for a Mobile Node MN which is moving (fig. 1, #14, 20A, #20B, #22), where the router functionality of the HA is the controller.

Forslow lack what Bomar describes:

a soft handover (SHO) process, where with a movement of a mobile node (MN) to be managed and no (new) tunnel corresponding to the single mobile node is established, the system (communication device) establishes a new connection (tunnel) when at least one tunnel corresponding to the single mobile node is established (col. 1, lines 48-52, where new connections are set up when the MN is traversing from one cell to another as described in col. 2, lines 9-13), where there exists a maximum (threshold) number of SHO connections (col. 2, lines 2-3, sixteen SHO channels).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the method of Bomar to the system of Forslow. The motivation being that by reducing the number of simultaneous channels used in each soft handover of a mobile, it may increase the system soft handover capacity (Bomar, col. 2, lines 9-13).

Forslow and Bomar combined lack what Suzuki describes as a resource allocation process to establish the new SHO connection (tunnel):

a number of all tunnels presently established for all mobile nodes by the communication device itself exceeds a predetermined threshold value, rejects (not allow yet) the establishment of the new tunnel, releases an older tunnel corresponding to the

Art Unit: 2668

single mobile node (col. 13, lines 33-50, where there number of connections are the VPI-VCI identifiers, and if the available/unused percentage is smaller than a threshold [i.e. # connections greater than threshold], releases oldest connection) before establishing new connection (fig. 7, #708 in establishing new connection after #707 as described in col. 13, lines 33-50).

It would have been obvious to one with ordinary skill in the art at the time of invention to incorporate the resource allocation process of Suzuki to the system infrastructure of Forslow and Bomar. The motivation being that there is a need to for the system to allocate resources for a connection when a mobile is moved to a new serving area to prevent the call from being dropped, where only then the older connections are required to be relinquished (Suzuki, col. 4, lines 30-34).

6. **Claim 5** is rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow in view of Bomar and Suzuki as applied to claim 4 above, and further in view of Baiyor (6,282,429).

Forslow, Bomar and Suzuki lack what Baiyor describes: the mobile nodes are classified into a plurality of classes based on a plurality of threshold values, and the establishment of a new connection/tunnel is rejected or executed/allocated based on the threshold value corresponding to the class to which the mobile node belongs (col. 2, lines 62-63 and col. 5, lines 47-55).

It would have been obvious to one with ordinary skill in the art at the time of invention by applicant to incorporate the connection determination process based on

Art Unit: 2668

classification/priorities to the system of Forslow, Bomar and Suzuki. The motivation being that "It would be advantageous to identify wireless subscribers who have priority calling before the call origination request consumed significant call processing resources" (col. 2 lines 2-4).

7. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow in view of Bomar and Douglass (6,487,596).

Forslow describes a Home Agent HA (communication device) with connections to Foreign Agents FA (accommodating communication device) for a Mobile Node MN which is moving (fig. 1, #14, 20A, #20B, #22).

Forslow lack what Bomar describes:

a soft handover (SHO) process where the system (communication device) establishes, with a movement of a mobile node (MN), a new connection (tunnel) for transferring a communication packet with the mobile node to an accommodating BS accommodating the MN at a moved destination (col. 1, lines 48-52, where new connections are set up when the MN is traversing from one cell to another as described in col. 2, lines 9-13).

It would have been obvious to one of ordinary skill in the art at the time of invention to incorporate the SHO method of Bomar to the system of Forslow. The motivation being that by reducing the number of simultaneous channels used in each soft handover of a mobile, it may increase the system soft handover capacity (Bomar, col. 2, lines 9-13).



Forslow and Bomar combined lack what Dougli describes: a method to determine the lifetime (timeout) of a connection based on a number of all tunnels presently used by a communication device (col. 4, lines 25-31, where the timeout of a modem connection due to inactivity is due to the number of connections/loading of the modem bank).

It would have been obvious to one with ordinary skill in the art at the time of invention to incorporate the method of Dougli into the system of Forslow and Bomar for determining the lifetime of the connection. The motivation being that system resources may be gained by varying the lifetime of individual connections (i.e. individual users at a particular serving area), "a disconnected user represents a recovered resources – a modem that can be used for another user" (col. 2, lines 16-18).

8. **Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Forslow in view of Bomar and Dougli as applied to claim 6 above, and further in view of Jennings (6,597,774).

Forslow, Bomar and Dougli lack what Jennings describes: the lifetime is notified to the mobile node/user (col. 1, lines 42-44).

It would have been obvious to one with ordinary skill in the art at the time of invention to incorporate the feature of informing the lifetime to the user. The motivation being that this feature will inform the usage time to the user (Jennings, col. 1, lines 29-31 and 35-36).

***Response to Amendment***

9. The examiner respectfully acknowledges that a certified copy of the foreign priority document has been received.
10. The examiner reviewed and approved the amended fig. 6 drawing. The objection to the drawing has been withdrawn.

***Response to Arguments***

11. Applicant's arguments with respect to claim 1-3 and 6-7 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

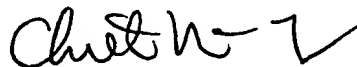
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Warner Wong whose telephone number is 571-272-8197. The examiner can normally be reached on 5:30AM - 2:00PM, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Warner Wong  
Examiner  
Art Unit 2668

WW



CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER